

## ON A NEW SPECIES OF SPONGE.

BY ALPHEUS HYATT.

*Aplysina pedicellata*, Hyatt. (Plate I.)

This species is founded upon three specimens, two in the collection of the Academy, and one in the collection of the Boston Society of Natural History. Locality is unknown, but probably East Indies.

The forms are all fistular, and from a foot to sixteen inches long, though not more than one and one-eighth inch in diameter. The basal portion is almost solid, and is composed of huge vertical fibres connected by very short horizontal branches, the mesh being very small.

The walls of the tubes are built up out of a thin network of fibres of two kinds. The inner part is a sheet of fibre, which surrounds the tube itself; the outer part is composed of palmate extensions of the inner sheet which anastomose with each other in every direction. In this way they give a cellular, or open frill-like aspect to the walls, since the cells or frills open more widely, or flare outwardly.<sup>1</sup> The mesh in most parts has a quadrangular form, but not infrequently has also the usual pentagonal or hexagonal outline common in most species of *Aplysina*. The fibres are hollow, but this is much larger in the vertical or primary fibres than in the secondary or horizontal fibres. The hollows of the primary fibres are universally filled with debris, but the cavities in the secondary fibres are entirely free from foreign matter.

Another very curious peculiarity is observable in the structure of the fibres. The central core of debris in the primary fibres is surrounded by a cement, apparently of keratode. This may be seen where the secondary fibres branch off from the primary as a continuous layer running across the open face of the secondary fibre.

The size of the cavity in the primary appears to be dependent upon the quantity of the debris in the primary fibres, since in one preparation the cavity of the primary fibres became as small as in

<sup>1</sup> This characteristic is not shown in the figures, which give the walls a solid aspect they do not naturally possess.

the secondary fibres whenever the core of debris failed in continuity.

The diameter of this hollow varies normally from one-half to one-eighth of the whole diameter.

These facts lead to the conclusion that, if this species lived where the water contained no sediment, we should find the fibres with an exceeding small central cavity. The concentric coats of keratode comprising the fibre are of two kinds as is usual, those which are primarily formed by the derm and those subsequently deposited by the meso-derm, the former being lighter colored, and occupying the interior, and the latter, in the specimens examined, very dark colored and with an exceedingly fibrous aspect.

This thickening of the walls of the fibre by meso-dermic deposits, and the small size of the central cavity, are similar to the characteristics of *Verongia*, to which also the form of the fibre, rounded rather than flattened, approximates.

This species, therefore, presents a mingling of some of the characteristics of *Verongia* and *Aplysina*, and also possesses a curious resemblance to the true Spongiæ in the habit of taking debris into the core of the fibre.

This mingling of characteristics led me at first to the supposition that it was a new genus.

Upon reflection, however, I do not think that these characteristics justify its separation from the genus *Aplysina*.

The peculiar arrangement of the fibres in sheets, and their resemblance in structure, far outweigh all other characteristics, and give a peculiar aspect to the surface which I believe is confined to the members of the genus *Aplysina*. It is, however, a very remarkable species, and this justifies its publication in spite of the uncertainty about the locality.